

REMARKS

Claims 1-6, 10-25 and 26-29 are active. Claims 26 and 27 respectively depend from claims 1 and 24 and further require conservation of the activity of the protein to be attached after attachment. Support for these claims is found on pages 7-9, e.g., on page 8, lines 31-33. Accordingly, the Applicants do not believe that any new matter has been introduced. Favorable consideration of this amendment and allowance of the application are respectfully requested.

Rejection—35 U.S.C. §103(a)

Claims 1-3, 6, 10-21 and 23-25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Livache, et al., Biosens. Bioelec. 13:629, in view of Guedon, et al., Anal. Chem. 72: 6003. The Applicants refer to their prior arguments which are supplemented below.

Initially, Livache which was applied in both obviousness rejections does not disclose a process as defined in the present application. Instead, Livache discloses a process for preparing biochips by synthesizing a copolymer starting from a peptide substituted by a dT10 oligonucleotide linked to a pyrrole with a pyrrole solution. Thus, in Livache, the peptide is not directly attached to a pyrrole because an additional specific oligonucleotide is interposed between the two molecular moieties, i.e., between the peptide and the pyrrole. This is completely different than the structural configuration required by the invention.

Guedon, which was applied as a secondary reference in both obviousness rejections, discloses **DNA** sensors and not **protein** sensors (see title) and does not suggest or enable the production of the subject matter of the invention which requires attachment of a protein to a conductive support.

Guedon discloses the hybridization signal obtained by these **DNA** sensors (not protein sensors) in view of the pyrrole film thickness. Those of ordinary skill in the art recognize the structural and functional differences between nucleic acids and proteins as well as in how these compounds interact with their ligands and would not have equated the results obtained by Guedon for DNA with any expectation of similar results for protein sensors.

Nevertheless, assuming *arguendo* that DNA and proteins had identical properties, Guedon still teaches away from the thickness of 10 nm or less required by claims 19, 23 and 24. Guedon indicates that thicknesses of 9 nm to 14 nm were tested and the optimal hybridization signal was objected for an 11 nm thickness. Thus, from these results one of ordinary skill in the art would have chosen a thickness of more than or equal to 11 nm, not one with a thickness of 10 nm or less as required by claims 19, 23 and 24. Indeed, for a 11 nm thickness, the reflectivity variation is 0.90% and this variation stays above 0.60% for all samples having thicknesses above 11 nm, while it diminishes in a far more important way for samples having thicknesses less than 11 nm, see e.g., the reflectivity variation around 0.40% for a sample having a thickness around 9 nm. Thus, Guedon is non-analogous art since it refers to DNA and not to protein sensors and also teaches away from the invention should DNA and proteins be improperly equated as similar chemical molecules. Neither of these documents suggests that performance of the steps required by the invention would produce a superior more functional attached protein. Accordingly, for the reasons of record as well as in view of the remarks above the obviousness rejections based on Livache and Guedon cannot be sustained.

Rejection—35 U.S.C. §103(a)

Claims 4, 5 and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable Livache, et al., Biosens. Bioelec. 13:629, in view of Guedon, et al., Anal. Chem. 72: 6003,

and further in view of either in view of Domb, U.S. 2006/0013850 or Caillat, et al., U.S. Patent No. 6,803,228.

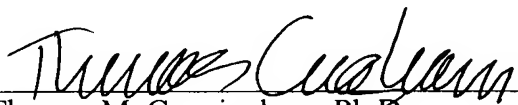
Livache and Guedon are commented on above and did not suggest or provide a reasonable expectation of success for the invention. Domb was relied on for teaching reactions between various chemical substrates and pyrroles, but does not suggest the steps required by the present claims or provide a reasonable expectation of success for the superior functionality of proteins attached by these steps. Caillat was cited as teaching a pyrrole polymer functionalized with N-hydroxysuccinimide and maleimide, but does not suggest the other aspects of the invention or provide a reasonable expectation of success for the superior functionality of the invention. Even if attachment of proteins to pyrroles is taught by the cited prior art, there is no suggestion of the results effective variables for obtaining the superior more functional attached proteins of the invention by selecting the conditions discovered by the inventors. Accordingly, this rejection may be withdrawn for the reasons discussed above.

CONCLUSION

In view of the above amendments and remarks, the Applicants respectfully submit that this application is ready for allowance. Early notification of such is earnestly requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon


Thomas M. Cunningham, Ph.D.
Registration No. 45,394

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 03/06)